

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of:

Establishment of an Improved Model for
Predicting the Broadcast Television Field
Strength Received at Individual Locations

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CS Docket No. 00-11

To: The Commission

REPLY COMMENTS OF THE
ASSOCIATION FOR MAXIMUM SERVICE TELEVISION, INC.
AND THE NATIONAL ASSOCIATION OF BROADCASTERS

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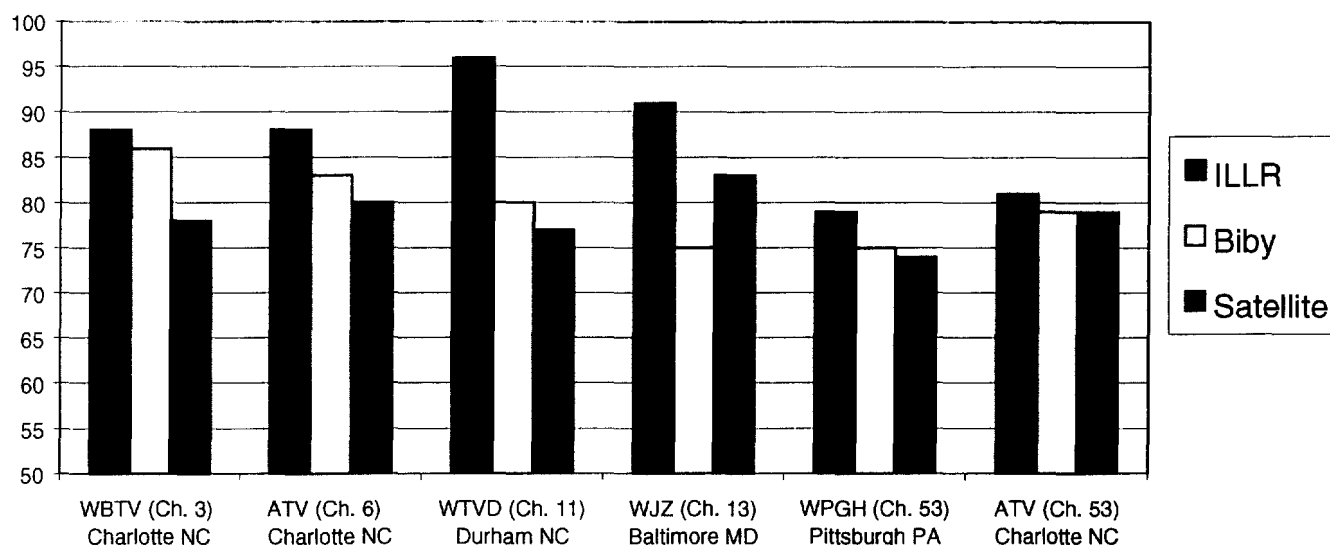
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Percent of Correct Results
Existing ILLR Model vs. Modifications Proposed by Commenters



EchoStar and certain other commenters urge the Commission to jump the gun by improperly expanding this narrow proceeding -- which is concerned solely with *predictions of signal intensity* -- to subsume the Commission's separate, future proceeding about whether to recommend to Congress that the Grade B intensity standard be reconsidered. Although we believe there is no need to alter the current Grade B standard, the Commission should address that issue, as the SHVIA requires, in a separate proceeding.

The Commission's NPRM contains, without any comment, a proposal to radically change the ILLR's treatment of "error codes" so that the appearance of any of several types of error codes would result in an automatic determination that the household is not served by a local station. NAB and MSTV respectfully suggest that this proposal has no basis in the operation of

Longley-Rice, is inconsistent with the reality that the overwhelming majority of households in fact receive Grade B signals, and would violate the basic principle of the SHVIA that compulsory licenses are to be narrowly construed.

The Commission should exercise tight control over the parameters to be used in running the ILLR model, lest a self-interested party (satellite carriers) be left to exercise discretion in all available ways to increase the number of households predicted to be “unserved.” And the Commission should not agree to bind commenters (and itself) to an absurdly truncated schedule for scientifically evaluating future proposals to modify the ILLR model.

Finally, the Commission should adopt rigorous standards for the individuals who will conduct tests under Section 339(c)(4) of the Communications Act, and should exclude any persons (such as satellite installers) who have a pecuniary interest in achieving a particular result. The Commission should also reject EchoStar’s proposal to sign up ILLR-ineligible subscribers after conducting secret signal intensity tests with no notice to stations.

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AND THE NATIONAL ASSOCIATION OF BROADCASTERS**

The National Association of Broadcasters (“NAB”)¹ and the Association of Maximum Service Television, Inc. (“MSTV”),² hereby submit their reply comments in response to the Commission’s Notice of Proposed Rulemaking (“NPRM”) in the above-captioned matter.

I. BECAUSE NO PROPOSED MODIFICATION OF THE HIGHLY ACCURATE ILLR MODEL WILL MAKE IT MORE ACCURATE, THE COMMISSION LACKS AUTHORITY TO MODIFY THE MODEL AT THIS TIME

Congress has given the Commission a simple mandate: to “*attempt*” to make the ILLR model more accurate by adding in an additional factor for buildings and vegetation -- and to assess whether its “attempt” has succeeded by checking the model’s predictions against real-world measurements. SHVIA Conference Report, Joint Explanatory Statement, 145 Cong Rec.

¹ NAB is a nonprofit incorporated association that serves and represents America’s radio and television broadcast stations and networks.

H11796 (daily ed. Nov. 9, 1999); *see* NAB/MSTV Comments at 1-11. Absent an empirically-validated method of improving the accuracy of ILLR, the Commission must -- for the reasons discussed in our Comments and below in these Reply Comments -- simply leave the current, highly accurate model in place.

A. No Changes May Be Made to the Already-Accurate ILLR Model Unless They Are Empirically Proven to Increase the Accuracy of the Model

As discussed in detail in NAB/MSTV's Comments, Congress established explicit "performance standards" for any modifications by the Commission to its existing, highly accurate ILLR model. *First*, the Commission may modify its existing ILLR model only if -- when measured against real-world measurements -- the modifications are scientifically proven to make the model more accurate. *Second*, increasing "accuracy," as the Commission recognized in its February 1999 Report & Order, does not mean merely trading off errors of one type (*e.g.*, overprediction) for errors of another type (*e.g.*, underprediction). *Third*, the relevant criterion is not whether the specific dBu prediction is precisely accurate, but whether the model places a particular location in the correct category: above Grade B intensity or below Grade B intensity. *Finally*, the accuracy of ILLR's predictions is not assessed with respect to single stations, but with respect to all nearby stations affiliated with the same network. That is, the issue is whether ILLR is correct in predicting that a household can (or cannot) receive *at least one* station affiliated with the network in question.

The satellite carriers simply ignore all this, and urge the Commission to enter the realm not of science but of science fiction. EchoStar and DirecTV insist, for example, that the

² MSTV is a non-profit trade association of local broadcast stations committed to achieving and maintaining the highest technical quality for the local broadcast system.

Commission reduce ILLR's predicted dBu values by very large amounts in most cases. *E.g.*, EchoStar Comments at 3-5; DirecTV Comments at 4-8. Although these changes would no doubt increase the number of households predicted to be "unserved" – as EchoStar and DirecTV intend – the carriers offer *no proof whatsoever that doing so would make ILLR more accurate*. Indeed, the satellite industry comments are strikingly devoid of any empirical analysis. That is not surprising, since random tests show that the overwhelming majority of households are in fact served by their local network stations – a brute empirical fact that simply cannot be squared with the satellite industry's proposals to predict large numbers of households to be unserved. For WBTV in Charlotte, North Carolina, for example, 98% of randomly selected households within the station's FCC-predicted Grade B contour were measured to receive signals of at least Grade B intensity from WBTV or another nearby affiliate of the relevant network. *See* Jules Cohen Expert Report, ¶ 33 (on file in Docket No. 98-201).

Although the satellite carriers have declined to subject their proposals to scientific scrutiny, NAB has now done so. As show below, the EchoStar/DirecTV proposal would make the ILLR model much *less* accurate. The same is true of the proposal by Richard Biby to modify Anita Longley's "urban factor" to serve as an all-purpose clutter adjustment.

B. Almost All Commenters Recognize the Inappropriateness of Using the Rubinstein Data to Predict Clutter Losses for TV Signals

In the NPRM, the Commission discusses clutter values derived from an article by Thomas Rubinstein. As virtually all commenters recognize, the Rubinstein data cannot validly be applied to television broadcast signals.³ As the American Federation of Consulting

³ *See* NAB/MSTV Comments at 18-26; Fox Comments at 4-5; Affiliate Ass'n Joint Comments at 8-23; Paxson Comments at 2-4; Association of Federal Communications Consulting Engineers Comments ("AFCCE") at 2; du Treil, Lundin & Rackley, Inc. Comments

Communications Engineers recognizes, for example, use of the Rubinstein data for television broadcast signals would be “technically unsound” for purposes of the SHVA. AFCCE Comments at 2. Indeed, the only commenters who endorse use of the Rubinstein data are satellite interests, who do so with no discussion whatsoever of the fatal technical problems that would result from use of that data. Rather, the satellite interests obviously see the large clutter losses in the Rubinstein data simply as a way of achieving their business objective: predicting more households to be unserved.

Among the most fundamental problems with use of the Rubinstein data are:

- Rubinstein’s data were collected in the land mobile, not the broadcasting, context. Several fatal problems flow from this fundamental difference. *First*, the test antennas used by Rubinstein were only about 6 feet above ground – only 1/3 to 1/5 the presumed height of a rooftop antenna under the SHVIA, which is assumed to be at either 20 or 30 feet above ground. *Second*, Rubinstein’s antennas were vertically polarized, while rooftop television antennas are horizontally polarized. Because of these differences, Rubinstein’s receiving antennas were much more likely to encounter losses from clutter. *See, e.g.* NAB/MSTV Comments at 18-21; Affiliates Ass’n Joint Comments at 9-17; RadioSoft Comments at 1; EDX Comments at 2; Paxson Comments at 2-3.
- Rubinstein tested frequencies that were not in the broadcast range, and none of his measurements were taken anywhere near the low VHF range. *See, e.g.*, NAB/MSTV Comments at 24-25; Affiliate Ass’n Joint Comments at 17-19. The Commission’s proposal to overcome this lack of data by attempting to extrapolate from frequency trend data, while creative, is far too speculative and should be rejected. Biby Comments at 16; Fox Comments at 5; Affiliates Ass’n Joint Comments at 17-19; NAB/MSTV Comments at 24-25.

(“du Treil”) at 1; EDX Engineering, Inc. Comments (“EDX”) at 1-3; Richard L. Biby Comments at 12.

- Although Rubinstein claims to have tested only locations with Fresnel zone clearance, it is impossible that he could have done so. *See* Affiliate Ass’n Joint Comments at 17; NAB/MSTV Comments at 21-23; Cohen Eng. Statement at ¶¶ 4-5. As a result, Rubinstein’s measured “clutter” losses are contaminated with losses due to lack of Fresnel zone clearance.

- Rubinstein’s analysis started from the wrong point for present purposes: instead of using Longley-Rice, Rubinstein employed the Okumura algorithm to predict signal strength. As a result, any values he derived are applicable only to the Okumura algorithm, since Longley-Rice would have produced different base predictions. *See, e.g.*, NAB/MSTV Comments at 23; Affiliate Ass’n Joint Comments at 19-20; RadioSoft Comments at 1; AFCCE Comments at 2; EDX Comments at 3; Fox Comments at 4-5.

There is also widespread agreement that -- *as EchoStar’s own expert has told a federal court* -- the U.S. Geological Survey’s Land Use and Land Clutter database is inadequate for use in determining the clutter present at 30 feet (or 20 feet) above ground in particular locations. *See, e.g.*, Affiliates Ass’n Joint Comments at 24-26; *id.*, IIT Research Institute (“IITRI”) Engineering Statement at 10-12; NAB/MSTV Comments at 26-28; *id.*, Cohen Engineering Statement at ¶ 10; Fox Comments at 6-7; RadioSoft Comments at 2; *cf.* Biby Comments at 16; Engineering Statement of Hammett & Edison, Inc. at 5-6.⁴

For all of these reasons, the Rubinstein data could not validly be used to predict clutter losses for reception of TV stations using rooftop antennas. And if there were any doubt about the matter, the empirical analysis below confirms the point.

⁴ DirecTV’s proposal to add an untested Fresnel zone module to the existing ILLR model, DirecTV Comments at 7-8, would likewise be inconsistent with the Commission’s statutory mandate to make changes to the ILLR model only if they have been empirically shown to increase the model’s accuracy.

C. None of the Proposed Modifications Increase the ILLR Model's Accuracy

To help the Commission comply with the SHVIA's mandate that any proposed modification of the ILLR model be tested against actual measurements, NAB and MSTV have compared the predictions of the ILLR model – as modified in various ways proposed in the NPRM or by commenters -- to over 1,000 signal intensity measurements taken using the measurement procedures set forth in 47 C.F.R. § 73.686. The results of this comparison resoundingly establish that none of the proposed modifications increases the accuracy of the ILLR model.

Indeed, almost without exception, the proposed modifications greatly *reduce* the accuracy of the existing ILLR model, in most cases by gravely worsening the ILLR's existing bias *against* stations. That is, to the limited extent that the current ILLR model is inaccurate, it overwhelmingly errs in favor of the satellite industry, by predicting that households are unserved when they do in fact receive a Grade B signal. By further reducing the predicted signal intensity levels by as much as 29 dBu, the proposals before the Commission would only exacerbate the existing problem of underprediction, thereby tipping the scales even more strongly against broadcasters. In any event, because none of the proposals would increase the accuracy of the ILLR model, the Commission is without power to adopt any of them.

1. Background: The Field Testing Data

The field test measurements used in the comparison consisted of two sets of data: (1) over 600 signal intensity measurements taken in the *PrimeTime 24* lawsuits in federal court; and (2) another approximately 400 signal intensity tests taken as part of the testing of the “Grand

Alliance” Advanced (High Definition) Television System. All of the locations tested in both sets of measurements were selected on a strictly neutral basis, as described below:

- **The PrimeTime 24 Litigation Measurements: Background.** For purposes of the *PrimeTime 24* litigation, over 600 field measurements were taken in five geographic locations -- Miami, Pittsburgh, Charlotte, Raleigh/Durham, and Baltimore. The selection of geographic markets, locations for testing, and the testing method are all described in detail in the Expert Report of Jules Cohen from the *PrimeTime 24* case, on file in Docket No. 98-201. As explained in Mr. Cohen’s expert report, both the geographic markets and specific households chosen for testing were selected on a neutral basis to provide as fair and comprehensive a range of data as possible. Cohen Expert Report ¶¶ 25-28. Approximately 100 locations were tested in each market, with the exception of Miami, where 200 measurements were taken (100 measurements of WSVN and 100 measurements of WFOR).
- **Selection of five geographic markets in PrimeTime 24.** The five geographic markets were selected as follows: Miami and Raleigh/Durham were selected because they were the locations of the lawsuits against PrimeTime 24. Mr. Cohen chose Charlotte and Baltimore because their terrain is typical of many markets across the country, including both reasonably flat terrain in some directions and hilly terrain in other directions.⁵ *Id.* at ¶ 25. Finally, Mr. Cohen selected Pittsburgh as a worst-case scenario because its terrain makes it one of the most difficult markets in the country for over-the-air broadcasting. *Id.* at ¶ 26. To make Pittsburgh even more of an “acid test,” Mr. Cohen chose channel 53 in Pittsburgh as the test station; UHF stations, such as channel 53, experience greater diffraction propagation losses over terrain barriers due to the shorter wavelengths of the UHF band. *Id.*

⁵ Charlotte was chosen for the additional reason that PrimeTime 24 had specifically mentioned it in the Miami litigation as an appropriate location for conducting signal intensity tests. *See* Cohen Expert Report, ¶ 25.

- **Random selection of individual locations in *PrimeTime 24*.** The specific households tested in the *PrimeTime 24* case were selected by applying a random selection procedure devised by professional statistician Seymour Sudman to subscriber lists provided by PrimeTime 24 to broadcasters pursuant to its statutory reporting obligation in the SHVA. *Id.* at ¶ 28. The random selection method was a standard and accepted one: alphabetizing subscriber lists, and then choosing every *n*th subscriber beginning at a random starting point. *Id.*
- **ATV Measurements in Charlotte.** The ATV testing methodology and selection of locations for measurements is described in detail in the engineering statement of Jules Cohen, submitted with NAB/MSTV's opening comments in this docket. The testing locations were neutrally selected on the basis of grids and clusters, as described in Mr. Cohen's engineering statement.

2. **The Four Models Being Assessed**

NAB's initial Comments included a table showing the results of comparing the *existing* ILLR model to the more than 1,000 field measurements. In general, those results showed that the existing ILLR model is remarkably accurate, and, with respect to VHF stations (which make up the majority of network stations), is tilted *against* broadcasters in that the existing model tends to underpredict station's actual service. (The table below incorporate the results reported in NAB/MSTV's Comments.)⁶

The following four versions of the ILLR model are assessed below:

⁶ The existing ILLR predictions for Charlotte test channel 6 from the ATV tests have been corrected in the charts below. The corrections amount to 1% or less.

- the *existing* ILLR model;
- the modification proposed in the NPRM (subtraction of simplified Rubinstein clutter values, but only in locations with Fresnel zone clearance);
- the EchoStar / DirecTV proposal (subtraction of simplified Rubinstein clutter values for all locations, without regard to Fresnel zone clearance); and
- the modification proposed by Richard L. Biby, which is based on an adjusted version of the “urban factor” set forth in Longley’s 1978 paper.

We discuss the proposed variants in more detail below, and then provide a table showing the effect of each model on the accuracy of ILLR predictions for each set of measurement data.

a. The NPRM/Rubinstein Method

In the NPRM, the Commission proposed (i) using a condensed version of the clutter groups in the USGS LULC database to categorize locations and then (ii) applying a set of clutter values, derived from an article by Thomas Rubinstein, based on the household’s classification. Because Rubinstein claimed to have Fresnel zone clearance for the locations analyzed in his article, the Commission correctly determined that the clutter values should be applied only to those areas that similarly were not shadowed.

As discussed above, the commenters overwhelmingly recognized that the Rubinstein data are unsuitable for use in predicting clutter losses for broadcast television stations. In addition, many commenters have pointed out the deficiencies in the USGS LULC database and the problems inherent in applying out-dated and ill-refined data for purposes of present-day

measurements. As summed up by RadioSoft, the LULC database “is woefully inadequate for the analysis required by this NPRM.” RadioSoft Comments at 2.

Because the NPRM model requires Fresnel zone clearance before any clutter loss subtraction occurs, and because relatively few locations have Fresnel zone clearance,⁷ the NPRM’s proposed procedure does not affect predicted signal strength in the great majority of cases. As a result, the modification proposed in the NPRM does not have any effect on the accuracy of the existing model in most markets, since it simply makes the same predictions as the existing ILLR model; and in Pittsburgh, the NPRM adjustment would change the percentage of correct predictions by only 1%. The complete results of this comparison are listed in Table C below. In any event, since there is no theoretical basis for using the Rubinstein data, there is no basis for the Commission to adopt the modifications tentatively proposed in the NPRM.

b. The EchoStar / DirecTV Proposal

Several satellite carriers advocate that the Rubinstein clutter values set forth in the NPRM be applied to all locations, regardless of Fresnel zone clearance. *See* EchoStar Comments at 5; DirecTV Comments at 5; Communications Technologies, Inc. Comments at 1; RadioSoft Comments at 2. As previously discussed, there are fatal problems with applying the Rubinstein land mobile data to the broadcast television context. In any event, the EchoStar/DirecTV proposal, if implemented, would result in a drastic loss of accuracy to the ILLR model, and a sharp surge in the number of locations falsely predicted to be unserved. This decrease in

⁷ According to RadioSoft, “limiting the application of LULC attenuation solely to paths with 0.6 Fresnel clearance will remove over 90% of potential receiver locations from consideration.” RadioSoft Comments at 2.

accuracy is found across all channels, and across all markets, with the exception of the stations in the Miami market where both ILLR and the EchoStar/DirecTV proposal correctly predicted that 100% of the randomly selected satellite subscribers were able to receive a Grade B signal and thus were illegally receiving satellite service. The devastating effect of the EchoStar/DirecTV proposal on accuracy and underprediction in the remaining markets is summarized below:

Table A: Effect of EchoStar/DirecTV Proposal

Station	Decrease in Accuracy	Increase in Underprediction
WBTV, Charlotte (Ch. 3)	10%	10%
WTVD, Durham (Ch. 11)	19%	19%
WJZ, Baltimore (Ch. 13)	8%	11%
WPGH, Pittsburgh (Ch. 53)	5%	17%
ATV Test, Charlotte (Ch. 6)	8%	8%
ATV Test, Charlotte (Ch. 53)	2%	23%

The complete results of the comparison can be found in Table C below.

c. The Biby Proposal

In his Comments, Richard L. Biby proposes that the Commission endorse a “clutter correction” derived from the “urban factor” proposed by Anita Longley in a 1978 paper. Using

the Commission's condensed version of LULC categories, Biby proposes that the following clutter adjustments be implemented:

<u>ILLR Category Number</u>	<u>Adjustment</u>
1, 2, 3	.5 x Longley Urban Factor
4, 6, 10	No adjustment
5, 7, 8, 9	Longley Urban Factor

NAB and MSTV have applied Mr. Biby's proposed formula to the Commission's ILLR model.

The results are stark: as with the EchoStar/DirecTV proposal, in each case the Biby adjustment makes the ILLR model *less* accurate in predicting actual measurement results:

Table B: Effect of Biby Proposal

Station	Decrease in Accuracy	Increase in Underprediction
WBTV, Charlotte (Ch. 3)	2%	2%
WTVD, Durham (Ch. 11)	16%	16%
WJZ, Baltimore (Ch. 13)	16%	17%
WPGH, Pittsburgh (Ch. 53)	4%	15%
ATV Test, Charlotte (Ch. 6)	5%	5%
ATV Test, Charlotte (Ch. 53)	2%	10%

The practical result is that, using the Biby modification, a large percent of households would be falsely found to be unserved and thus eligible for satellite service when in fact ILLR correctly predicts that those locations are served and therefore ineligible. The complete results of the comparison are listed below in Table C. As discussed above, the Commission is statutorily

barred from implementing any modification to the ILLR model that would decrease its accuracy.

d. Comparison of All Proposed Modifications

Table C below shows the breakdown, by percent, of correct predictions, overpredictions, and underpredictions for the Commission's existing ILLR model and for each of the three variants just discussed.

Table C: Overall Empirical Comparison Results

Station & Model	% Correct Predictions	% Over-Predictions	% Under-Predictions
WBTV, Charlotte			
ILLR	88	1	11
NPRM	88	1	11
Biby	86	1	13
DirecTV/EchoStar	78	1	21
WFOR, Miami			
ILLR	100	0	0
NPRM	100	0	0
Biby	100	0	0
DirecTV/EchoStar	100	0	0
WSVN, Miami			
ILLR	100	0	0
NPRM	100	0	0
Biby	100	0	0
DirecTV/EchoStar	100	0	0
WTVD, Durham			
ILLR	96	0	4
NPRM	96	0	4
Biby	80	0	20
DirecTV/EchoStar	77	0	23

Station & Model	% Correct Predictions	% Over-Predictions	% Under-Predictions
WJZ, Baltimore			
ILLR	91	4	5
NPRM	91	4	5
Biby	75	3	22
DirecTV/EchoStar	83	2	15
WPGH, Pittsburgh			
ILLR	79	17	4
NPRM	80	15	5
Biby	75	6	19
DirecTV/EchoStar	74	6	20
ATV Ch. 6, Charlotte			
ILLR	88	5	7
NPRM	88	5	7
Biby	83	5	12
DirecTV/EchoStar	80	5	15
ATV Ch. 53, Charlotte			
ILLR	81	16	3
NPRM	81	15	4
Biby	79	8	13
DirecTV/EchoStar	79	6	15

In addition, Appendices 1 and 2 are graphs showing the impact of the various modifications on the total percent of accuracy (Appendix 1) and errors (Appendix 2) for each tested channel. As these graphs and the above table illustrate, none of these modifications meets the statutory hurdle of scientifically improving ILLR's accuracy.

D. The AFCCE Data-Gathering Proposal

In its Comments, the AFCCE proposes that the Commission “allow[] the clutter loss values to remain equal to zero on an interim basis for all receiving sites until proposed clutter loss values are accepted by the technical and scientific community.” AFCCE Comments at 3. The NAB and MSTV agree that this approach comports with the statutory mandate that unproven alterations to the ILLR model be avoided. As explained above, the NAB and MSTV have tested each proposed clutter modification against real world data and have found that none would improve the Commission’s current, already highly accurate, model. Instead, the proposed changes would simply exacerbate the existing bias of the model against broadcasters by heaping on still more underpredictions. As a result, the Commission lacks authority at this time to adopt any proposed further adjustment for clutter.

II. THE ANCILLARY PROPOSALS FOR CHANGING THE GRADE B ARE IRRELEVANT AND HAVE NO PLACE IN THIS PROCEEDING

Several commenters urge the Commission to resolve matters far beyond the scope of the present proceeding, which is limited to methods of *predicting signal intensity*. For example, EchoStar urges the Commission to *replace* the objective, Grade B signal intensity standard adopted by Congress with a test that would – in some unknown way – account for ghosting, a problem that is *not* caused by lack of signal intensity. EchoStar Comments at 5-7. (The problem of ghosting can, of course, be largely eliminated in most cases by use of a properly oriented antenna.) Similarly, Richard Biby proposes that the Commission add ghosting and multipath elements to the ILLR model and to the Commission’s testing procedures. Biby Comments at 13-14.

The EchoStar and Biby proposals go far beyond the scope of the present docket, which, as the title reflects, is about an “Improved Model for *Predicting* the Broadcast Television *Field Strength* Received at Individual Locations.” (Emphasis added.) To the extent that the EchoStar and Biby comments address matters other than signal strength and matters other than prediction, they are simply not responsive to this limited NPRM.

NAB and MSTV assume that the Commission will start a separate proceeding to carry out the SHVIA’s directive to “evaluate all possible standards and factors for determining eligibility for retransmission of the signals of network stations, and if appropriate,” make a recommendation to Congress about a possible new standard. 47 U.S.C. § 339(c)(1). The statutory deadline for completing that proceeding is November 29, 2000. Although EchoStar improperly urges the Commission to roll that proceeding into the present, narrow proceeding, the National Rural Telecommunications Cooperative expressly recognizes that a *separate* proceeding will be required to address such matters and that the present docket does not include them. *See* NRTC Comments at 7.

When the “is Grade B intensity the best standard” proceeding occurs, NAB and MSTV will show that even if the EchoStar, Biby, and NRTC proposals were technically feasible,⁸ they would make no sense, since -- among many other reasons -- a large and growing percentage of viewers *already have local-to-local network service available*. For example, even if the towers of Manhattan create some level of multipath problems for over-the-air reception of local TV stations, that is irrelevant to Manhattan dish owners, who can now receive those same local TV stations *by satellite*. Since local-to-local satellite transmissions eliminate any question about the

⁸ They are not. *See* Affiliate Ass’n Reply Comments; Cohen Reply Eng. Statement.

ability of satellite subscribers to view network programming on their local stations, there is obviously no policy reason to destroy the rights of copyright owners by expanding the distant-signal eligibility standard.

III. THE COMMISSION SHOULD TIGHTLY RESTRICT ANY “DISCRETION” TO BE EXERCISED IN RUNNING THE ILLR MODEL

Although private firms now run the ILLR model for satellite carriers -- or provide “turnkey” software to enable carriers to do so -- it is crucial that the *Commission* continue to make all important decisions about how the model should be run. The reason is obvious: as their Comments reflect, satellite carriers want to sell distant network signals to as many customers as possible, and have every incentive to “tweak” the ILLR model in any available way to permit them to enlarge the number of households predicted to be “unserved.” The Commission should therefore resolve all issues about the proper parameters for running the ILLR model, rather than putting a self-interested party in charge of making those crucial decisions.

IV. THE COMMISSION SHOULD NOT CHANGE THE ILLR MODEL’S TREATMENT OF ERROR CODES

In its February 1999 SHVA Report & Order, the Commission correctly concluded that if the ILLR model returns an error code, “a party should either accept the prediction by ignoring the error code or test the result with an on-site measurement.” SHVA Report & Order at ¶ 85. The current NPRM contained a surprising and unexplained proposal to reverse that ruling, by presuming that a household is unserved if the ILLR model returns an error code of 2, 3, or 4. NPRM, Appendix A. The Joint Comments filed by the Affiliate Associations, like NAB’s

Comments, explain why doing so would be a grave error. *See* NAB/MSTV Comments at 28-30; Affiliate Ass'n Joint Comments at 34-38.

The Commission has no power to presume that a household is unserved based on the return of an error code, and it would be inappropriate to do so even if the Commission had the power. Under the Copyright Act, the burden remains on the satellite carrier to show that a household is “unserved” before offering a distant signal to that household, 17 U.S.C. § 119(a)(5)(D), and the presence of an “error code” simply does not indicate that a household is unserved. As the Conference Report emphasizes, the goal of the section 119 license “must be met by *only allowing distant network service to those homes which cannot receive the local network television stations.*” SHVIA Conference Report, 145 Cong. Rec. H11793 (daily ed. Nov. 9, 1999) (emphasis added).

Nor would there be any logic to presuming a lack of service based on an error code. Indeed, the very engineering firm that originally called the Commission’s attention to the error code issue, Hammett & Edison, ultimately agreed that the correct approach is simply to accept the predicted value and ignore the error code. Comments of Hammett & Edison, Inc., CS Docket 98-201 (filed Dec. 11, 1998) at 7. That approach makes perfect sense, especially since the actual *measurements* show that the overwhelming majority of households can easily receive signals of Grade B intensity from nearby network affiliates -- making a presumption of *service*, not lack of service, appropriate as an empirical matter. And as explained in the Joint Comments of the Affiliate Associations, the engineering statement of IITRI, and the Reply Engineering Statement of Jules Cohen, there is no theoretical reason, based on the operation of Longley-Rice, to presume non-service based on an error code.

Finally, the proposed radical change in treatment of error codes would also violate the Commission's duty to change the existing ILLR model *only* if the change has been shown by empirical data to improve the accuracy of the model. NAB and MSTV are aware of no empirical tests showing that treating locations as unserved because of error codes would increase the accuracy of the model, and there is every reason to expect that such a presumption would drastically decrease the model's accuracy.

On a related point, NAB and MSTV concur with the Affiliate Associations that the receiving antenna height should remain at 9.1 or 6.1 meters -- the metric equivalent of 30 or 20 feet. The NPRM, perhaps through inadvertence, had rounded these figures to 9.0 and 6.0 meters.

**V. PROPOSALS FOR SUPER-EXPEDITED RULEMAKING
ON FUTURE PROPOSED CHANGES TO THE ILLR
MODEL ARE INCONSISTENT WITH GOOD SCIENCE**

DirecTV makes a remarkable -- and untenable -- proposal about time frames for future petitions to modify the ILLR model: that "such petitions be placed upon a 10-day/5-day comment and reply cycle," with an order to be issued within 45 days after the petition is filed. DirecTV Comments at 9. There is no reason for the Commission to bind itself, or the parties, to such a whirlwind schedule, which is completely inconsistent with Congress' mandate that the Commission apply scientific principles -- and testing of theory against fact -- before making any changes to the ILLR model.

VI. THE COMMISSION SHOULD ADOPT RIGOROUS STANDARDS TO ENSURE COMPETENCE AND NEUTRALITY IN TESTING, AND SHOULD REJECT ECHOSTAR'S PROPOSALS TO CONDUCT *EX PARTE* TESTING

As several commenters note, the SHVIA calls the Commission to designate an “independent and neutral entity” to designate “qualified and independent” persons to conduct signal intensity tests if stations and satellite carriers are unable to agree on an appropriate person to do so. 47 U.S.C. § 339(c)(4)(A), (B). Although the Commission is required to designate an “entity” that will itself designate testing personnel, the Commission should establish clear and firm governing principles to ensure that the process works properly. In particular, to implement this provision, the Commission should take the following steps:

- Establish a qualification test for each person who seeks to serve as a “qualified and independent” tester, to ensure that any such person is competent to perform the necessary work. Ideally, such tests would be performed only by professional engineers. If others are to be included on the list, they should be required to demonstrate their competence with a hands-on test under various conditions.
- Require the “independent entity” to solicit applications from persons who wish to conduct such tests.
- Order the independent entity to exclude persons with obvious potential biases, such as persons who install satellite systems.
- Require the independent entity to solicit comments from the public about the qualifications of those individuals who have passed the qualification test and who do not have evident bias.
- Direct the independent entity to establish a tentative list of persons who qualify as competent, neutral, and independent testers, subject to adjustment based on experience.